AMENDMENTS TO THE SPECIFICATION

In the Specification:

Please replace the paragraph at page 9 lines 11 - 19 with the following amended paragraph:

[0034] It is to be appreciated that the output of the inductive element 130 can be utilized to toggle the state at the output of the switching component [[130]] 120. For example, in one aspect of the present invention, the second winding of the inductive [[component 110]] element 130 can be center tapped wherein one end of the second winding provides an output 140 and another end of the second winding provides an output 150, wherein the outputs 140 and 150 can be 180 degrees out-of-phase. When a pulse is received by the inductive element 130, a current can be induced in the second winding such that one of the outputs 140 and 150 can provide an activating signal to the switching component 120 while the other output 150 or 140 can provide a deactivating signal to the switching component 120.

Please replace the paragraph at page 11 lines 5 -13 with the following amended paragraph:

[0040] A base 224 of the transistor 204 and a base 226 of the transistor 206 can be coupled to a voltage source 228 that can provide a suitable bias voltage. A current source 230 can be utilized to [[couples]] couple a center-tap 232 of the secondary winding 216 with a voltage source 234. The current source [[234]] 230 can be utilized to regulate a current to the center-tap 232. A resistor 236 and a resistor 238 can be utilized to couple the transistor 204 and the transistor 206, respectively, to a ground 240 through a winding 242 and a winding 244 of a transformer 245. Differential outputs 246 and 248 can be obtained from a collector lead 250 associated with the transistor 204 and a collector lead 252 associated with the transistor 206, respectively.

Please replace the paragraph at page 11 lines 22 – page 12 line 2 with the following amended paragraph:

[0042] In a particular example, the following element values can be utilized: the windings 242 and 244 can be about 20 microns in length, the windings are arranged in opposite polarity; resistor 236 can be about 33 ohms; resistor 238 can be about 33 [[about]] ohms; the bias voltage 228 can be about -0.7 volts (for a InP HBT or Si BJT); the windings 216 and 212 can be about 130 microns long; the current source 230 can be about 5 milliamperes; and voltage source 234 can be about -2.5 to -3.3 volts. The primary 212 can be utilized as a clock, for example, with speeds from 20 GHz to 125 GHz. At 125 GHz, the delay time between the clock differential signals and signals at the outputs 246 and 248 can be about 2.5 picoseconds. In addition, the system 200 can perform over about one octave, for example, from 25 GHz to 50 GHz, with similar value components. Moreover, the switched emitter current ratio (e.g., current through resistor 236/current through resistor 238) can range from about 2:1 to 6:1, for example.

Please replace the paragraph at page 12 lines 10 – 18 with the following amended paragraph:

[0044] The steering component 310 can comprise at least two inductive components 340 and 350 that can be utilized to generate and provide inductive current to the switching component 330. For example, one or more clock pulses can be received by the steering component 310, wherein the pulses can energize a primary winding (not shown) associated with the inductive component 340 and a primary winding (not shown) associated with the inductive component 350. Energizing the primary windings can induce currents in respective secondary windings (not shown). The pulses provided to the steering component 310 can be configured to emulate a differential clock input. As such, the current steering component 310 can be utilized to provide inputs to the switching component [[340]] 330.

Please replace the paragraph at page 12 lines 19 – 29 with the following amended paragraph:

[0045] Similar to the switching component 120, the switching component [[340]] 330 can comprise a plurality of transistors, including Indium Phosphide (InP), carbon-doped InP, Indium Gallium Arsenide (InGaAs), GaAs, and/or Aluminum Gallium Arsenide

(AlGaAs) heterojunction bipolar transistors (HBTs) (e.g., single HBTs (SHBTs) and double HBTs (DHBTs), as well as SiGe HBTs, JFETs or IGFETs. In addition, these transistors can be employed as differential pair and/or other configurations. Furthermore, the current steering [[components]] <u>component</u> 310 [[and 320]] can be utilized to [[generated]] <u>generate</u> inputs for the switching component [[340]] <u>330</u>. Thus, a signal 360 and a signal 370 generated by the current steering component 310 can be utilized as inputs to the switching component [[340]] <u>330</u>. Typically, these inputs are phase shifted (e.g., 180 degrees) and can be utilized to toggle the state of the plurality of transistors configured as differential pairs to provide a switched differential output.

Please replace the paragraph at page 12 line 30 – page 13 line 8 with the following amended paragraph:

[0046] By way of example, a pulse train can be provided to the inductive element 340 via of the current steering component 310 that generates a signal 360 that activates a transistor(s) from a differential transistor pair of the switching component 330. Concurrently, a 180-degree phase shifted signal can be provided to the inductive element 350 via of the current steering component 310 that generates a signal 370 that deactivates the other transistor of the differential transistor pair of the switching component 330. The collectors of the respective transistors from the differential transistor pair of the switching component 330 can be utilized to provide an output 380 and an output 390, wherein a combination of the outputs 380 and 390 provide a differential output for the switching component [[340]] <u>330</u>.

Please replace the paragraph at page 13 line 28 – page 14 line 2 with the following amended paragraph:

[0049] FIG. 4 illustrates a system 400 that can be employed as a differential clock bus switching device (e.g., the system 300 described supra), in accordance with an aspect of the present invention. The system 400 is similar to the system 200, except that it utilizes a differential clock signal 402 rather than a single clock [[single]] <u>signal</u> to drive the transistors pair 202. The differential clock signal 402 provides a signal that traverses

through the input 208, a primary winding 404, a resistor 406, a primary winding 408 and the input 410.

Please replace the paragraph at page 14 lines 3 – 10 with the following amended paragraph:

[0050] The signal typically energizes the windings 404 and [[406]] <u>408</u> in an out-of-phase manner (e.g., an opposite polarity) such that one of a secondary winding 412 associated with the primary winding 404 or a secondary winding 414 associated with the primary winding [[404]] <u>408</u> is induced with a current that can turn "on" its associated transistor 204 or 206. The input signal can switch states such that the active transistor becomes inactive and the in active transistor becomes active. The foregoing configuration provides for switching differential outputs at outputs 246 and 248 that can be employed as inputs, for example, to various logic gates including AND, OR, XOR, NOR, MUX, and the like.

Please replace the paragraph at page 14 lines 10 – 15 with the following amended paragraph:

[0051] It is to be appreciated that the clock signal at the input 208 can be referred to as a "true" clock signal, whereas the clock signal at the input [[402]] <u>410</u> can be referred to as a "false" clock signal. In addition, the secondary windings 414 and 412 can be constructed from metal 1 traces, the primary windings 404 and 408 can be constructed from a metal 2 air bridge residing proximate the metal 1 traces.

Please replace the paragraph at page 15 lines 5 – 13 with the following amended paragraph:

[0054] FIG. 6 illustrates an exemplary system 600 that can be employed as a D flip-flop, in accordance with an aspect of the present invention. The system 600 comprises a data latch 605 and a data latch 610. As depicted, the data latches 605 and 610 can be coupled in a series manner. Conventional systems typically employ a clock transistor to steer current in flip-flops. However, utilizing a clock transistor can increase a system's propagation delay. This delay is mitigated in the system 600 via employing inductive

current steering. It is noted that in various [[aspect]] aspects of the present invention, it can be [[advantages]] advantageous to utilize both the novel transformer-based clock technique described herein and the conventional transistor-based clock technique.